

ALASKA DEPARTMENT OF FISH AND GAME  
CODED WIRE TAG SAMPLING PROGRAM

**SAMPLING INSTRUCTIONS  
RACK and ESCAPEMENT**

2014  
SOUTHEAST ALASKA

**Introduction**

Coded wire tags (CWT) recovered from properly designed and conducted studies can provide scientists, fishery managers, and hatchery operators with data for evaluating and managing salmon stocks. The use of this stock identification tool has been in use since the early 1970s.

Sampling fish at hatchery racks, at weirs, or during escapement surveys is the last of a series of sampling programs designed to look for, identify, and collect heads from coded wire tagged fish. Tags recovered in commercial and sport fishery sampling programs expanded by catch/sample and release/tag ratios are expanded by escapement/sample ratios to produce overall survival estimates and to determine commercial and sport fishery exploitation rates. All CWT data are available on the Tag Lab web site at <http://mtalab.adfg.alaska.gov/CWT/reports>.

**General Instructions**

All species of salmon and steelhead have been coded wire tagged in various areas of the state. However since 2010, only coho and Chinook salmon have been tagged in Alaska. The species you check for CWT's (externally identified by a missing adipose fin) are dependent on location and your project's goals, objectives, and sampling design. **Individual project objectives, sampling design criteria, and specific instructions for how, when, and where you conduct your sampling will be provided by the project leader or your supervisor.** Adipose clipped fish should be handled in the following manner. Complete a CWT Sampling Form; insert a uniquely numbered cinch strap through the mouth and out the operculum; and collect the head. In some instances, your supervisor may instruct you to remove the heads of only a portion of the observed, adipose clipped fish. **You should only sub-sample adipose clipped fish if specifically instructed by your supervisor and if fewer heads collected randomly will provide you with data within acceptable confidence limits.**

**Specific Instructions for Completion of CWT Sampling Form**

Note: Specific data items listed on the CWT Sampling Form (sampling form) are identified in these instructions by the use of all capital letters. The sampling form and the specific instructions are divided into five major sections: General Information; Sampling Information; Area Information; Head Recovery Information; and Comments. One sampling form (Figure 1) will be completed for each day on which you recovered one or more heads at a hatchery rack, weir, or stream survey site.

**Only a single value for each requested data item is allowed.** Only heads recovered from a single day at a single site should be recorded on the same sampling form. **Samples from multiple days or locations cannot be listed on the same sampling form.** You may have multiple pages for a single sample. Heads not listed on a sampling form will not be processed by the Tag Lab.

**General Sample Information Section** Please record the counts on all pages of each sampling form for samples with multiple sheets.

- **SAMPLE NUMBER:** This number identifies each unique sampling form in the CWT database. The supervisor has been given a sample number series to assign. If you do not know what sample number series to assign, please contact the Tag Lab.
- **PAGE \_\_\_ OF \_\_\_ PAGES:** additional pages will be required if more than 15 heads are recovered on a single day at a single site. Page numbers are specific to each individual sample; e.g., a sample with 17 heads will have page 2 of 2 with the same sample number assigned to both sheets. Number of fish sampled and clips observed should be recorded on all pages when multiple pages are used for one sample.
- **SOURCE:** circle one—Check with your supervisor or the Tag Lab for clarification, if unsure.
  - rack return:** for sampling at a hatchery or other central incubation facility.
  - escapement survey:** for sampling at a weir, stream, river, lake or spawning grounds.
  - hatchery:** for sampling fish at a hatchery specifically to determine CWT retention rates
- **SURVEY SITE :** name of hatchery, stream, lake or weir surveyed
- **SAMPLE TYPE:** circle one

**Random** samples are those samples where you actually count and inspect all or part of the returning fish for the presence of CWTs. The data from the fraction of the return sampled can be used to make inferences about the unsampled return, if all returning fish are not inspected for CWTs. Detailed instructions for random sampling procedures for your location will be given to you by the project leader or your supervisor. To ensure that a reliable estimate of marked and unmarked fish is attained, sampling must be done in the following two step manner:

- First - **select fish you are going to inspect, count it**
- Second - **determine if the adipose fin is absent**

**You must first choose a fish to inspect, then look to see if the adipose fin is absent.** Turn fish over if fin is not visible. Fish with partially regenerated adipose fins or poor quality marks should be set aside and treated as if coded wire tagged. **Complete a sampling form for each day and location sampled even if no adipose clips were observed.**

**Select** samples are those heads that have been recovered from a source outside of a random sampling program. These heads would not have been recovered in your random sampling activities. For example, you are walking along a stream and happen to look down at a fish and see that it is clipped, then take the head. You are not actually looking for tagged fish. These recoveries cannot be used to make inferences about a larger unsampled population. Fish that have been sampled previously in the same year in the same system for CWT should be marked select so that they are not accounted for twice.

- **SAMPLER:** your last name.
- **DATE SAMPLED:** date fish are sampled by you. Heads sampled from only one day at one location can be listed on a single sampling form.

## Sampling Information Section

A sampling form must be completed for all random samples each day and location fish were sampled even if no adipose clipped fish were observed. Random and select recoveries can not be listed on the same sampling form. For samples with multiple sheets, please record the counts on all pages of each sampling form. Record for each species:

- **TOTAL # FISH CHECKED FOR AD-CLIPS:** count and record each fish, by species, you choose to inspect. Included in that count will be both unclipped and adipose clipped fish. **Count only those fish you are sure either have or do not have an adipose fin. If you did not get a good look at the fin do not count that fish.**
- **# ADIPOSE CLIPS SEEN:** record by species the number of fish counted that are missing adipose fins. "Zero" adipose clips seen is a valid observation and must be recorded.

Note: If your supervisor instructed you to collect only a portion of the heads of adipose clipped fish observed and counted (sub-sampling the heads) you should record the number of adipose clips observed and make a clear note in the COMMENTS section about your sub-sampling activities. (For example, you sampled 179 coho on November 20 at Deer Mountain and observed 68 adipose clipped coho. You were instructed by your supervisor to remove heads from only 7 fish. The remaining 61 adipose clipped fish were spawned but heads were not removed.) You would record the following (see Figure 2) for this example:

TOTAL # FISH CHECKED FOR AD-CLIPS = 179  
# ADIPOSE CLIPPED OBSERVED = 68\*  
COMMENTS:     **Sub-Sampled**  
                  7 heads taken  
                  61 heads not taken  
                  \*68 total adipose clipped fish observed

Tag Lab staff will assign phantom head numbers to the remaining 61 heads and list them as LOST (adipose clipped fish observed but not received at the Tag Lab for processing). This is still a **Random Sample** because you are accounting for all fish observed and counted and listing the ones that did not actually have the head removed.

- **WERE ALL CHECKED?** circle yes or no (for each species checked). It is vital that you count only those fish you are sure have or do not have an adipose fin and that you have actually determined this by visual sight. If you circle yes, you are stating that you looked at every single fish that possibly went by you in the stream, the weir, etc., and that you positively determined that each fish did or did not have a clip. This does not refer to the number of heads taken. Circle yes or no.

## **Area Information Section**

- **AREA INFORMATION (DISTRICT-SUBDISTRICT):** record current and valid commercial fishing district and subdistrict where fish were sampled/recovered: (e.g.; Medvejie Hatchery 113-41, Gastineau Hatchery 111-40, Farragut River 110-14, Whitman Lake 101-45, etc.).
- **NAME of PLACE SURVEYED (HATCHERY OR STREAM):** location of facility, weir, stream, lake or spawning ground.
- **WATER TYPE:** were fish collected in saltwater or freshwater? Circle one.
- **ANADROMOUS STREAM # (freshwater-only):** Please enter the Anadromous Stream Catalog number listed in the latest edition of the "Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes" published by the Department's Sport Fish Division for fish that were sampled/recovered in freshwater. This will be at least a ten digit number but could have as many as thirty-eight digits. The Anadromous Stream Catalog for SE Alaska is available online at [http://www.adfg.alaska.gov/static-sf/AWC/PDFs/2013sea\\_CATALOG.pdf](http://www.adfg.alaska.gov/static-sf/AWC/PDFs/2013sea_CATALOG.pdf). Please call your local Sport Fish office or the Tag Lab for assistance if a catalog is unavailable. Be as descriptive as possible when you record the NAME OF HATCHERY OR STREAM. See attached list for ANADROMOUS STREAM #s.

## **Head Recovery Information Section**

- ☒ : each fish head should be checked off as it is boxed for shipment to the Tag Lab.
- **HEAD NUMBER\***: insert a pre-numbered cinch strap through the mouth and out the operculum (gill plate) of each head identified as bearing a CWT. Insert these so that the number can be read when the head is frozen. A series of cinch straps have been assigned to you for this specific project. Use them in numerical order. Cinch-up the strap and record its imprinted 6-digit number under HEAD NUMBER on the sampling form. If a cinch strap is missing from the sequence assigned to you, list that number(s) on the sampling form on which it should have appeared. The number along with the word "**Void**" should be written in the comments section of the sampling form.
  - \*Note: If you are using a cinch strap with only five digits or numbers simply insert a leading zero for the first digit.
- **SPECIES CODE**: Record species code of each adipose clipped fish using the following codes:
  - 410 = CHIN** - king or Chinook salmon
  - 411 = JACK** - king or Chinook salmon only; check with your site sampling supervisor for length criteria prior to selection and entry as a JACK (generally < 28 inches total length). Many projects do not use this designation and later sort the data based on length and age.
  - 420 = SOCK** - sockeye or red salmon
  - 430 = COHO** - coho or silver salmon
  - 440 = PINK** - pink or humpback salmon
  - 450 = CHUM** - chum or dog salmon
  - 540 = STHD** - steelhead trout
- **LENGTH**: record the length (mid-eye to the fork-of-tail), if measured, to the nearest 5 millimeter (mm). See Figure 3
  - lengths ending in 1 or 2 are rounded to 0
  - lengths ending in 3 or 4 are rounded to 5
  - lengths ending in 6 or 7 are rounded to 5
  - lengths ending in 8 or 9 are rounded to 0
- **CLIP**: note quality of adipose clip using the following codes:
  - 1 - OK (fish must be observed)
  - 2 - Questionable - partially regenerated or poor quality clip (fish must be observed)
  - 3 - Unknown (use for select samples where the fish is not observed by the sampler)
- **SEX**: record the sex of the fish using the following codes: (Note: Completion of this item is optional, however it is recorded on the CWT database if reported on the sampling form.)
  - F - female
  - M - male

## **Comments Section**

- **COMMENTS**: Record any comments you may have about the sample, or its irregularities in the comments section of the sampling form or on the back of the sampling form. Please indicate that we should "see back of the sampling form" if you write notes on the back.

## **Head Preparation and Shipment Instructions**

1. At the end of each day, check sampling forms.
  - Be sure that **all** data items have been completed.
  - Be sure all heads recovered are accounted for on the sampling forms for that day.
  - Be sure that all heads listed on sampling forms were retrieved, bagged, and are in a freezer.
2. Heads should be shipped to the Tag Lab periodically during the season, as often as once a week.
3. When collected, heads must be placed in an individual plastic bag, provided by the Tag Lab. Heads must be frozen (**if a freezer is not available, preserved in borax or salt**). Place individually bagged heads in large garbage bags inside a box (wet lock boxes not required if heads are double bagged). If time permits, please thoroughly rinse or remove gills from escapement fish. Residual sand and debris from the ground can cause problems with the magnetic detectors and false signals can occur when trying to dissect the tags.
4. Place all **original** sampling forms in a single plastic bag and place in the box with heads.
5. The person in charge of shipping heads to the Tag Lab will complete the HEAD SHIPMENT SUMMARY FORM and include it with the head shipment. Instructions for completion of that form will be sent to the person in charge of each project. Check off heads on sampling form as they are being boxed for shipment in order to ensure that all heads are sent to Juneau.
6. Use the 'CWT Head Shipment' labels to number the boxes so we can be sure the air carrier gives us the complete shipment.
7. Put the data in one box and circle YES Data Enclosed? on the corresponding box label.
8. Attach KEEP FROZEN/ADDRESS labels to one or two sides of your boxes.
9. If you live in a community served by Alaska Airlines, send heads and data directly to the Tag Lab on that carrier. If you work in a community not served directly by Alaska Airlines send shipments to Juneau on a regularly scheduled commuter flight that transfers to Alaska Airlines.
10. Use shipping labels provided. Send heads **Prepaid** to:

Alaska Department of Fish and Game  
CF Division, Mark, Tag, and Age Lab  
P.O. Box 115526  
Juneau, Alaska 99811-5526

CALL UPON ARRIVAL IN JUNEAU  
(907) 465-3483

### **11. Heads shipped without data will not be processed.**

12. Please call if you have questions or if you need additional supplies. Thanks for your hard work and cooperation. Have a good season.

## Alaska Department of Fish and Game

### Coded Wire Tag Sampling Form

## Rack Return and Escapement Survey Southeast Region

Page info for this  
Sample Number only  
See instructions

PAGE

**PAGES**

OF

SAMPLE NUMBER:

1

**SOURCE:**

rack return

escapement survey

## hatchery

other

**SURVEY SITE:**

**SAMPLE TYPE:**

random

select

**SAMPLER:**

DATE SAMPLED:

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**1**

### SAMPLING INFORMATION

This Box to be completed for  
RANDOM Samples Only

SPECIES (CODE)	TOTAL # FISH CHECKED FOR AD-CLIPS	# AD-CLIPS SEEN	WERE ALL CHECKED?
(410)CHIN			y n
(411)JACK CHINOOK-ONLY			y n
(420)SOCK			y n
(430)COHO			y n
(440)PINK	Not in S.E.		y n
(450)CHUM			y n
(540)STHD			y n

**AREA INFORMATION (DISTRICT - SUBDISTRICT)**

101-	106-	111-	116-	157-	191-
102-	107-	112-	150-	181-	192-
103-	108-	113-	152-	182-	OTHER DISTRICTS
104-	109-	114-	154-	183-	_____
105-	110-	115-	156-	189-	_____

NAME of PLACE SURVEYED: (HATCHERY OR STREAM)

WATER TYPE: saltwater freshwater

ANADROMOUS  
STREAM#  
(FRESHWATER-  
ONLY)

## HEAD RECOVERY INFORMATION

[illegible]

## COMMENTS

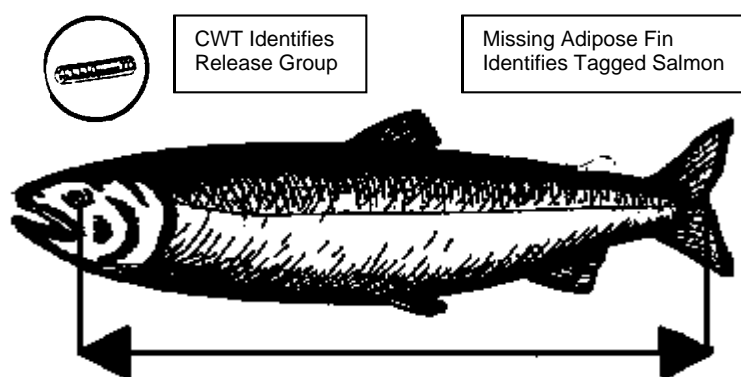


PAGE \_\_\_\_\_ OF \_\_\_\_\_

TUE845340517P:085330: 153030: 332 02

**FIGURE 3**

# SALMON MEASUREMENT



Mid-eye to Fork Measurement